TROPICAL RAINFALL MEASURING MISSION

March 1, 1999 - March 7, 1999
DOY 060 - 066
Day of Mission 459 - 465

TRMM MISSION OPERATIONS

- TRMM is flying in the +X Forward direction as of 99-063, at 03:20:57z.
- The next Yaw maneuver is scheduled for March 26 (99-085).
- The next Delta-V maneuver is scheduled for March 10 (069) using the LBS thrusters.
- The Beta angle range for DOY 067 to 073 is 16.13° to 32.6°.

TRMM SUBSYSTEM OPERATIONS

Attitude Control System

On 99-060 at 19:34z a new ACS Table #85 was loaded to the RAM memory. The position limits for the TDRS ephemeris continuity were increased from 400 km to 800 km.

Delta-V maneuver #82 was successfully conducted on 99-061 at 15:51:58z and 16:37:49z, for durations of 36 and 10.75 seconds respectively, using the ISP thrusters. The off-modulation of the -Pitch thruster (#6) was 33.3% and 32.6% respectively (66.7% and 67.4% on time). The remaining fuel is 753.774 kg and the final apogee and perigee height is 354.75 km x 347.36 km.

On 99-063 at 03:20z a Yaw maneuver was successfully performed from -X to +X.

Delta-V maneuver #83 was successfully conducted on 99-065 at 15:47:44z and 16:33:28z, for durations of 31 and 25.625 seconds respectively, using the LBS thrusters. The off-modulation of the +Pitch thruster (#2) was 21.8% and 26.8% respectively (78.2% and 73.2% on time). There was no off-modulation of the -Yaw thruster (#1) due to the short durations of the burns. The remaining fuel is 752.418 kg and the final apogee and perigee height is 354.77 km x 347.51 km.

The ESA experienced Moon interference in quadrants 2 and 4 during 99/063-066. The ACS performed nominally during the transition between 3 and 4 head control. FDC Tests 81-84 remain disabled until a final wider ESA quadrant interference duration can be validated and uplinked.

Flight Data System (FDS)/Command & Data Handling (C&DH)

The Frequency Standard continues to drift in the negative direction and the frequency is still set to x74D. The UTCF remains at 31535996.868698 sec. The current drift value is -825 µs. The current drift rate is -5.09 µs/hr.

Q-Channel Restarts occurred on 99-062 at 14:14z (2) and 17:17z and on 99-064 at 10:02z.

An EDAC multi-bit error occurred on 99-066 at 19:29:19z.

Reaction Control Subsystem (RCS)

The RCS subsystem performed nominally during this period. See the ACS section for specific Delta-V information.

Power Subsystem

During the time of the CERES instrument test, the SOC counter fell to low values. The end of day state of charge fell to approximately 96.60% for battery 1 and 95.67% for battery 2 on 99-065. The battery charge to discharge ratios have mostly remained above 1.03. Next week, the plan to possibly to the adjust the battery state of charge counter will be discussed with Code 563.

Electrical Subsystem

The Electrical subsystem operated nominally during this period.

Thermal Subsystem

The Thermal subsystem operated nominally during this period.

Deployables Subsystem

The Deployables subsystem performed nominally during this period.

RF/Communications Subsystem

The RF/Communications subsystem has performed nominally during this period.

SPACECRAFT INSTRUMENTS

CERES

CERES personnel are developing a plan for operating the instrument with the +15 V DAA anomaly. The FOT proposal which describes the new method for leaving CERES powered on for SunAcq/Safehold events is awaiting final review, approval and testing. The next test period is planned for March 16th.

During the time period 99/062 through 99/068 the CERES instrument was powered on for science collection with the SCARAB mission and the IDOEX ground tests. In the table below are the activities that were executed this week. A Solar calibration was performed on 99-065 at 00:43:10z, and a special Internal calibration was performed at 99-065/ 02:44:12z. The +15 V DAA converter voltage has remained below the 20 V saturation threshold throughout the test.

GMT	Activity
99-062/03:03z	Power ON

99-062/04:59z	Scan at 180°
99/062/08:59z	Scan at 243.66° (for SCARAB)
99-062/10:40z	Power OFF
99-062/19:19z	Power ON
99-062/21:01z	Scan at 243.66° (for SCARAB)
99-063/01:52z	Scan at 180°
99-063/07:47z	Power OFF
99-064/02:26z	Power ON
99-064/03:53z	Scan at 180°
99-064/08:19z	Power OFF
99-064/18:31z	Power ON
99-064/19:38z	Scan at 243.66° (for SCARAB)
99-065/01:18z	Scan at 180°
99-065/07:00z	Power OFF
99-066/01:29z	Power ON
99-066/02:29z	Scan at 180°
99-066/08:01z	Power OFF
99-066/22:39z	Power ON

LIS

LIS performed nominally during this time period.

PR

PR performed nominally during this time period. The list of Internal Calibration times for the week is listed below.

1999:060:14:30:41z - 14:32:49z
1999:061:13:19:06z - 13:21:17z
1999:062:05:38:03z - 05:41:52z
1999:062:13:41:58z - 13:44:06z
1999:063:12:30:38z - 12:32:48z
1999:064:04:48:21z - 04:53:26z
1999:065:11:41:30z - 11:43:40z
1999:066:03:59:49z - 04:03:10z
1999:066:10:30:12z - 10:32:27z

TMI

TMI performed nominally during this time period.

VIRS

On 99-065 between 03:07:51z and 03:08:11z VIRS performed a self-reset (Anomaly #56). The scan drive remains on following a reset and therefore science is still collected. Due to a MOC hardware problem (see Ground System), VIRS was not reconfigured for nominal mode until the

99-065/05:21z event. A second self-reset occurred on 99-065 between 22:23:20z and 22:23:30z and was reconfigured during the 99-065/22:12z event.

Solar calibrations were performed at 99-066/04:39:42z and 99-066/09:14:00z.

GROUND SYSTEM

String 2 upgrade is now complete, and testing will be conducted all next week for Mission Planning and other verifications prior to taking String 3 off-line. The GTAS machine has been upgraded to the new UNIX and GTAS software, and is now operating off the new 9 GB hard drive. The Y2K compliant AMASS software has been upgraded. The jukebox cannot be accessed at this time, because of read/write problems and a failed drive.

On 99-064 the root disk for the GTAS workstation failed (Event #92), and the 9 GB hard drive file system was lost. A replacement 4 GB disk was temporarily added to replace the /level0 disk for post event trending of history files until a replacement 9 GB is installed. The Level0 files have not been received from DDF on the replacement drive (Event #91); the cause is still under investigation.

On 99-065 TR1WS2 crashed during a support (Event #90), but commanding was restored on the backup workstation in time to complete data storage tasks.

Event Reports

#90 - TR1WS1 crashed during realtime event..
#91 - Unable to receive Level0 products.
#92 - Root disk failure on TR2WS3/ 9 GB file system lost.

Generic Late Acquisition Reports (for TTRs 19639)

No Generic Late Acquisitions occurred during this week.

New Anomaly

No new Anomaly Reports were opened during this week.

Recurring Open Anomalies

56 VIRS instrument Reset (twice).

Prepared by:
Candace Shoemaker
TRMM Systems Engineer

Approved by:
Jeff Volosin
FOT Manager